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## United States Court of Appeals for the Federal Circuit

03-1423

ECOLAB INC.,

Plaintiff-Appellant,

v.

JOHNSON DIVERSEY, INC.,

Defendant-Appellee.

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DECIDED: April 6, 2004

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Before LOURIE, CLEVINGER, and BRYSON, Circuit Judges.

BRYSON, Circuit Judge.

This is an appeal from an order of the United States District Court for the District of Minnesota, No. 03-CV-2231, denying Ecolab's motion for a preliminary injunction in a patent infringement suit. On appeal, Ecolab argues that the district court's order denying preliminary injunctive relief was based on an incorrect claim construction. Although we do not agree with Ecolab's principal claim construction argument, we agree that the record does not support the claim construction adopted by the district court. Moreover, the district court did not address a secondary claim construction argument that Ecolab advanced in support of its preliminary injunction motion and on which the parties presented conflicting evidence. Because we conclude that the court

should have addressed that claim construction issue, we ~~vacate~~ the court's order denying a preliminary injunction and remand this case to the district court for further consideration of Ecolab's request for preliminary injunctive relief.

Ecolab Inc. is the assignee of United States Patent No. 6,495,494 ("the '494 patent"), which covers the use of a particular lubricant composition in connection with high-speed conveyor lines such as those used in bottling plants. In 2002, Ecolab discovered that JohnsonDiversey, Inc., was marketing a product called Dicolube TPB, which Ecolab believed infringed the '494 patent. As a result, Ecolab filed an action against JohnsonDiversey and sought a preliminary injunction to stop the sales of the allegedly infringing product.

Ecolab alleges that Dicolube infringes independent claims 1 and 21 of the '494 patent, as well as dependent claims 10 and 11, which depend from claim 1. Claim 1 provides:

1. A method for lubricating the passage of a container along a conveyor, comprising applying a mixture of a water-miscible silicone material and a water-miscible lubricant to at least a portion of the container-contacting surface of the conveyor or to at least a portion of the conveyor-contacting surface of the container.

Claim 21 is similar, except that it recites a lubricated conveyor or container. It provides:

21. A lubricated conveyor or container, having a lubricant coating on a container contacting surface of the conveyor or on a conveyor-contacting surface of the container, wherein the coating comprises a mixture of a water-miscible silicone material and a water-miscible lubricant.

Dependent claims 10 and 11 provide:

10. A method according to claim 1, wherein the silicone material comprises a silicone emulsion and the mixture comprises water.

11. A method according to claim 1, wherein the water-miscible lubricant comprises a hydroxy-containing compound, polyalkylene glycol, copolymer of ethylene and propylene oxides, sorbitan ester or derivative of any of the foregoing.

The lubricant composition referred to in all four asserted claims contains at least two components: a water-miscible silicone material and a water-miscible lubricant.

Dicolube contains, among other components, a water-miscible silicone emulsion and Dowanol DPM, a product sold by the Dow Chemical Company, which the manufacturer identifies as a hydrophilic glycol ether. It is undisputed that Dicolube satisfies the first requirement of the '494 patent, in that it contains a water-miscible silicone material. It is also undisputed that Dowanol is water-miscible. The issue in dispute is whether Dowanol is a lubricant within the meaning of any of the asserted claims.

In ruling on the motion for a preliminary injunction, the district court construed the term "lubricant," as used in the claims, to mean a substance that significantly reduces the coefficient of friction of a particular composition below what the coefficient of friction of that composition would be in the absence of the lubricant. The court concluded that the evidence Ecolab proffered was insufficient to establish that Dowanol significantly lowered the coefficient of friction of the lubricant composition relative to the coefficient of friction of the composition in the absence of Dowanol. The court therefore concluded that Ecolab did not demonstrate a likelihood of success on the merits. In addition, the court concluded that Ecolab had failed to establish that it would suffer irreparable harm in the absence of a preliminary injunction. In support of that conclusion, the court found that Ecolab had "advanced no evidence to support the finding that money damages would be insufficient to compensate Ecolab for the alleged infringement," and that it

was likely that if a judgment were entered against JohnsonDiversey, "Ecolab could quantify its damages with substantial precision." Having found that Ecolab had failed to establish either a likelihood of success on the merits or a likelihood that it would suffer irreparable harm from the denial of injunctive relief, the court concluded that it was unnecessary to consider whether the other two factors pertinent to granting preliminary equitable relief—the balance of hardships and the public interest—cut in favor of issuing an injunction.

II

On appeal from an order granting or denying a preliminary injunction, we review the district court's action for an abuse of discretion. See Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1350 (Fed. Cir. 2001). In so doing, we review the district court's assessment of the four traditional factors that bear on the propriety of preliminary injunctive relief: (1) the likelihood of the movant's success on the merits; (2) the prospect that the movant will suffer irreparable harm if an injunction is not granted; (3) the balance of hardships between the parties; and (4) the public interest. Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1338-39 (Fed. Cir. 2003). An abuse of discretion may be established by showing that the district court "made a clear error of judgment in weighing relevant factors or exercised its discretion based upon an error of law or clearly erroneous factual findings." Novo Nordisk of N. Am., Inc. v. Genentech, Inc., 77 F.3d 1364, 1367 (Fed. Cir. 1996).

The parties direct most of their attention on appeal to the first factor—the likelihood of the patentee's success on the merits. They focus in particular on the definition of the term "lubricant" as used in the '494 patent. In the district court, Ecolab

acknowledged that the patent did not provide a general definition of "lubricant." It then proffered both a definition of the term from a general dictionary ("a substance (as grease) capable of reducing friction" or "something that lessens or prevents friction or difficulty"), and a definition provided by one of its employees, Amy McBroom ("[A] lubricant is a substance that produces a COF [coefficient of friction] lower than that produced using water alone."). In its brief on appeal, Ecolab mainly pressed the broad dictionary definition as the proper general definition of "lubricant," but at oral argument Ecolab retreated to Ms. McBroom's somewhat narrower definition, asserting that her definition (a substance with a coefficient of friction lower than water) provides the meaning of "lubricant," as used in the claim term "water-miscible lubricant," that would be used by one of skill in the art in the application to which the patent is directed.

Before the district court, JohnsonDiversey offered a definition of the term "lubricant" taken from a technical dictionary. That definition referred to a lubricant as "a substance of low viscosity" and added that "materials as diverse as air, water and molasses could theoretically be used as lubricants under appropriate conditions. Air and water have been used, as well as some solids such as graphite, but in general oils, fats and waxes are utilized." A declaration from a JohnsonDiversey employee, Jacques Rouillard, offered a refinement of that definition as applied to the field of the invention. Mr. Rouillard stated that in the field of bottling conveyors a lubricant would be understood to be "[a] substance applied to track surfaces to materially improve the mobility of containers through the filling process." He added that suitability for use as a lubricant in a given application "is a factor to be considered by the person of ordinary skill in the art in determining whether or not a given chemical or compound can be used

as a 'lubricant' in that application." He noted that unless particular components are added to a composition "for the purpose of affecting lubricity or have the effect of materially affecting lubricity, they are not considered to [be] 'lubricants' by one of ordinary skill in the art."

A

The district court rejected both parties' definitions of "lubricant" and adopted its own definition. As noted, the court concluded that a person of ordinary skill in the pertinent art would regard a particular component as a lubricant only if the component, when added to a particular composition, materially reduced the coefficient of friction of the composition. Applying that definition, the district court concluded that Ecolab had not shown a substantial likelihood that it would prevail on the merits of its infringement claim based on the tests that were before the court. Those tests showed in one case that a composition containing Dicolube and Dowanol had a slightly higher coefficient of friction than the same composition without Dowanol, and in another case that the coefficient of friction of the Dicolube composition without Dowanol was not materially changed by the addition of Dowanol. Because adding Dowanol to the composition did not materially lower the composition's coefficient of friction, the court concluded that Dowanol did not serve as a lubricant in the application recited in the patent, and that Dowanol therefore did not satisfy the "water-miscible lubricant" limitation of the asserted claims.

Ecolab takes issue with the district court's requirement that a component materially improve the lubricating properties of the composition to which it is added in order to be considered a "lubricant" as that term is used in the patent. We find

substantial merit in Ecolab's criticism of the district court's analysis. Under the district court's definition, whether a particular substance would be regarded as a lubricant would depend on what else was in the composition to which the "lubricant" component was to be added. Even a substance that persons of skill in the art would regard as a very good lubricant would cease to be a lubricant, under the district court's definition, if it were added to a composition that already had even better lubricating qualities. For example, Ecolab points out that silicone is one of the best known lubricants. For that reason, adding a substance that normally would be regarded as a very good lubricant to a silicon-based composition might not reduce the composition's coefficient of friction. In that event, under the district court's definition, the added substance would not qualify as a lubricant.

As Ecolab points out, there is nothing in the patent or the extrinsic evidence to support the district court's restrictive definition. The district court relied on the statement in the patent that "[t]he invention provides a lubricant coating that reduces the coefficient of friction of coated conveyor parts and containers and thereby facilitates movement of containers along a conveyor line." '494 patent, col. 2, ll. 2-5. That statement, however, does not call for a comparison of the lubricity of a water-miscible lubricant with the lubricity of the lubricant composition in the absence of the water-miscible lubricant. In fact, the statement is conspicuously silent as to the standard against which the lubricity of the water-miscible lubricant should be measured. Thus, the passage from the patent on which the court principally relied does not support the court's claim construction. Because the district court's definition would potentially exclude some substances that are widely regarded as lubricants, and because there is

no support in the patent for giving the claim language such a restrictive construction, we agree with Ecolab that the record does not support the district court's definition.

B

While we believe there is merit in Ecolab's criticism of the district court's claim construction, we agree with the district court that there is little to be said for Ecolab's proposed definition of a lubricant as a substance having better lubricating qualities than water. That definition comes from a declaration by Ms. McBroom, but the pertinent statement merely consists of an unelaborated conclusion: "My understanding of the definition of a lubricant is a substance that produces a [coefficient of friction] lower than that produced using water alone." Ms. McBroom did not offer any support for her definition, nor did she state that it is the definition generally employed by persons of skill in the relevant art.

Ecolab asserts that the patent provides support for Ms. McBroom's definition of lubricant, but we do not agree. Ecolab's first argument is that a lubricant must have better lubricating qualities than water, because if it did not, a manufacturer would use water alone as a sufficient and cheaper alternative. That argument is not persuasive. It is possible, for example, that a manufacturer might use a substance other than water as a lubricant, even if the substance had no better lubricating qualities than water, if the substance had other desired properties that water lacked. Moreover, the reference to what manufacturers would consider a suitable lubricant is simply lawyer's argument; it was not supported by evidence. In fact, Ecolab offered no evidentiary support for its "better than water" definition other than the ipse dixit in Ms. McBroom's declaration. In particular, Ecolab failed to explain why a substance with lubricating qualities only



slightly better than water would be regarded as a lubricant, while a substance with lubricating qualities only slightly inferior to those of water would not. While Ecolab offered various tests of the lubricating properties of Dowanol as compared to water, there was no suggestion in Ecolab's submissions that persons of ordinary skill in the art of lubricating conveyors would decide whether a substance is a lubricant depending on whether its lubricating qualities are superior to those of water.

We also find unpersuasive Ecolab's argument that claim 16 provides the basis for the "compared to water" standard for defining a lubricant. Claim 16 requires that the lubricating composition as a whole have a coefficient of friction of less than 0.14 (approximately that of water). It says nothing about whether the coefficient of friction of the "water-miscible lubricant" component of the composition must be lower than that of water. Moreover, claim 16 is a dependent claim, and independent claim 1, from which claim 16 depends, is not subject to the 0.14 coefficient of friction limitation. The claims therefore provide no support for Mr. McBroom's "better than water" definition.

C

Not only do we agree with the district court in rejecting Ecolab's proposed definition of "lubricant," but we also agree with the court that JohnsonDiversey's efforts at defining the term "lubricant" present problems. JohnsonDiversey's first definition, taken from a technical dictionary, fails to provide any useful guidance because, as the district court pointed out, it suggests that almost anything can serve as a lubricant under appropriate circumstances. JohnsonDiversey's alternative definition, offered through Mr. Rouillard, is also difficult to pin down. Mr. Rouillard characterized a "lubricant" as a substance that is "applied to track surfaces to materially improve the mobility of

containers through the filling process." He did not, however, indicate what the improvement in mobility is to be measured against. He then stated, tautologically, that "[s]uitability for use as a lubricant in a given application is a factor to be considered by a person of ordinary skill in the art in determining whether or not a given chemical or compound can be used as a 'lubricant' in that application." In other words, suitability as a lubricant in a particular application is the measure of whether a particular substance would be a suitable lubricant in that application—not a helpful definition.

In another portion of his declaration, Mr. Rouillard stated that "unless [particular components] are added for [the] purpose of affecting lubricity or have the effect of materially affecting lubricity, they are not considered to [be] 'lubricants' by one of ordinary skill in the art." In referring to the requirement that a lubricant "materially affect[]" lubricity, Mr. Rouillard again failed to address the question, "compared to what?" In context, it appears that Mr. Rouillard was suggesting that a substance cannot be regarded as a lubricant if it does not improve the lubricating properties of the particular composition to which it is added. To the extent that his analysis is based on a comparison with the composition to which the lubricant is added, Mr. Rouillard's analysis is flawed for the same reason as the district court's.

#### D

Although we do not agree with the restrictive definition of "lubricant" chosen by the district court, we would be prepared to uphold the court's denial of the motion for a preliminary injunction if the infringement issue had turned solely on the general definition of lubricant. Particularly in light of Ecolab's failure to provide an acceptable alternative general definition of "lubricant," Ecolab cannot be said to have met its

burden of showing a substantial likelihood of success in proving infringement based on that general definition. However, in addition to urging that Dicolube TPB infringed because Dowanol satisfied the general definition of a "water-miscible lubricant," Ecolab presented an alternative claim construction theory that the district court did not address. Because the viability of that alternative theory of claim construction turns on the resolution of issues on which the parties made conflicting presentations, we vacate the district court's order and remand this case for further proceedings addressed to that claim construction theory.

Pointing to a portion of the specification and a corresponding dependent claim (claim 11), Ecolab argues that, in addition to the general definition of "lubricant," the patent specifically identifies certain classes of compounds as being lubricants as that term is used in the patent. Ecolab contends that Dowanol falls within these identified classes of compounds, as shown by the evidence that Ecolab offered during the preliminary injunction proceedings.

The passage from the specification on which Ecolab relies provides as follows:

A variety of water-miscible lubricants can be employed in the lubricant compositions, including hydroxy-containing compounds such as polyols (e.g., glycerol and propylene glycol); polyalkylene glycols (e.g., the CARBOWAX™ series of polyethylene and methoxypolyethylene glycols commercially available from Union Carbide Corp.); linear copolymers of ethylene and propylene oxides (e.g., UCON™ 50-HB-100 water-soluble ethylene oxide: propylene oxide copolymer, commercially available from Union Carbide Corp.); and sorbitan esters (e.g., TWEEN™ series 20, 40, 60, 80 and 85 polyoxyethylene sorbitan monooleates and SPAN™ series 20, 80, 83 and 85 sorbitan esters, commercially available from ICI Surfactants). Other suitable water-miscible lubricants include phosphate esters, amines and their derivatives, and other commercially available water-miscible lubricants that will be familiar to those skilled in the art. Derivatives (e.g., partial esters of ethoxylates) of the above lubricants can also be employed.

'494 patent, col. 3, l. 27-44.

The parties disagree about the meaning of that passage. Ecolab contends that it identifies certain compounds and classes of compounds as being lubricants for purposes of the patent, while JohnsonDiversey argues that the passage merely identifies certain general classes of compounds of which certain members may qualify as lubricants, as long as they also satisfy the narrow definition of "lubricant" adopted by the district court.

Based on the record developed in the preliminary injunction proceedings, Ecolab's characterization of the passage in question is the more persuasive. The passage is definitional in nature, referring to the identified compounds as being "includ[ed]" in the "variety of water-miscible lubricants." That language suggests that hydroxy-containing compounds such as polyols are "lubricants," and that the term "lubricant" also includes all compounds falling within the categories of polyalkylene glycols, linear copolymers of ethylene and propylene oxides, sorbitan esters, and derivatives of each of those compounds. Dependent claim 11 confirms the definitional nature of that portion of the specification, because it claims a composition in which the water-miscible lubricant comprises "a hydroxy-containing compound, polyalkylene glycol, copolymer of ethylene and propylene oxides, sorbitan ester or derivative of any of the foregoing." That claim language, read in light of the specification, suggests that if a substance falls within one of the identified categories, it would be considered a "lubricant" for purposes of the '494 patent, regardless of whether it satisfied any other definitional criteria or would be regarded as a lubricant in common parlance or to a person of skill in the pertinent art.

In the district court, Ecolab argued that Dowanol is a hydroxy-containing compound and a type of polyalkylene glycol. For that reason, Ecolab argued, Dowanol must be regarded as a lubricant. On that issue, the parties' experts filed conflicting declarations. Ecolab's expert, Thomas J. Halston, submitted a declaration in which he attested that Dowanol is a hydroxy-containing compound (because it contains a hydroxy group) and that it is also a polyalkylene glycol as that term is used in the '494 patent. Dr. Halston stated that by including methoxypolyethylene glycol as a specific example of a polyalkylene glycol, the '494 patent's specification "confirms that Dowanol, also known as a methoxypolyalkylene glycol, methoxypolypropylene glycol, or methoxydipropylene glycol, is a polyalkylene glycol." [A. 659]. In addition, Ecolab's expert David R. Cleveland stated that Dowanol (dipropyleneglycolmonomethylether) is a "hydroxyl-containing compound" and "a derivative of a polyalkylene glycol (a half ether) within the literal language of the Patent." He added that Ecolab personnel had advised him that Dowanol would be regarded by a person of ordinary skill in the art as a "polyalkylene glycol," since that term "frequently is used to cover materials that can be made from polyalkylene glycols." Ecolab also relied on Ms. McBroom's declaration, in which she stated that Dowanol is a polyalkylene glycol because "[a]ccording to general trade literature and patent art, a polyalkylene glycol represents homopolymers of ethylene oxide, propylene oxide, or a mix of both ethylene and propylene oxides" and that Dowanol is a polyalkylene glycol because it contains "an oxypropylene (propylene glycol) repeating unit."

In response, JohnsonDiversey offered a declaration from its expert, Tim A. Osswald, who stated that Dowanol is an ether that is intended for use as a solvent. He

stated that the chemical name of Dowanol is Dipropylene Glycol Methyl Ether and that, although it contains a hydroxy group, it is different from the compounds listed in the patent as examples of hydroxy-containing compounds because, as an ether, it has different properties from compounds such as glycerol and propylene glycol. In addition, he stated that Dowanol is not a polyalkylene glycol because it has only two propylene repeat units, "making it a dipropylene and not a polypropylene." With respect to the portion of the patent that referred to derivatives of the described compounds, Dr. Oswald addressed the two examples of derivatives given in the patent (partial esters and ethoxylates) and stated that Dowanol was not within either of those two classes of compounds. In support of Dr. Oswald's statements, JohnsonDiversey offered Mr. Rouillard's statement that a person of ordinary skill in the art "would not understand the category 'hydroxy containing compounds' to include an ether which normally functions as a detergent or solvent."

While the parties thus joined issue with respect to whether Dowanol is a lubricant, either because it is a qualifying hydroxy-containing compound, or because it is a polyalkylene glycol, or because it is a derivative of one of those compounds, the district court did not address the definition of "lubricant" that was based on the passage of the specification quoted above. On appeal, Ecolab continues to press its position that Dowanol must be regarded as a lubricant because it falls within one or more of those three classes of compounds, as shown by the evidence Ecolab offered to the district court. In response, JohnsonDiversey points to Dr. Oswald's statement that Dowanol is not a polyalkylene glycol, but rather is a glycol ether. Ecolab replies that

although Dowanol is an ether, it would still be considered a member of the class of polyalkylene glycols by a person of skill in the art.

JohnsonDiversey also points to Dr. Oswald's explanation of why Dowanol is different from each of the specific classes of compounds identified as lubricants in the specification. As to Dr. Oswald's statement that Dowanol is not a polyalkylene glycol in part because it has only two propylene repeat units and the term "poly" means more than two in this context, Ecolab's expert gave a squarely contrary definition of "poly," thus raising a factual question that was not resolved by the district court.

Finally, in addressing the question whether Dowanol would be considered a derivative of one of the classes of compounds specified in the patent, Dr. Oswald stated that Dowanol was different from each of the two examples of derivatives given in the specification. But the list of examples in the specification does not appear to be exhaustive. To the extent that the class of derivatives includes compounds other than the two examples given, Dr. Oswald's declaration on that issue is not fully responsive to Ecolab's evidence.

Based on the points summarized above, we conclude that Ecolab presented sufficient evidence of infringement under its proposed alternative construction of the term "water-miscible lubricant" to call for the district court to address the evidentiary conflicts and determine whether Ecolab has proved a likelihood of success of proving infringement on that theory. Because the question of infringement based on that claim construction theory was not expressly addressed by the district court, we remand this case to allow the district court to address that issue.

## E

In light of the remand order, we add the following observations. First, in determining whether to grant preliminary relief on remand, the court may examine any other aspect of the case that bears on the question whether preliminary injunctive relief should be granted. In particular, before granting preliminary relief, the court should determine whether Ecolab has shown that JohnsonDiversey's invalidity defense "lacks substantial merit" as to all the asserted claims. Amazon.com, Inc., 239 F.3d at 1350-51. In the initial proceeding, the district court did not address the issue of validity, because the court found that Ecolab had not shown a likelihood of success in proving infringement even if the asserted claims were assumed to be valid. On remand, it may be necessary for the court to address validity.

Second, we recognize that in a preliminary injunction proceeding, claim construction is often tentative and is subject to revision following more plenary proceedings in the course of the case.<sup>1</sup> Thus, nothing we say here is intended to suggest that our claim construction analysis is definitive and immutable. As we have explained, "We do not regard it as our function [in a preliminary injunction appeal] to definitively construe" disputed claim language or to review claim construction in the

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<sup>1</sup> Recognizing that the record in preliminary injunction proceedings is often limited, we have held that a district court's claim construction at the preliminary injunction stage is always subject to later revision and does not stand as law of the case for the purpose of subsequent proceedings in the case. See Jack Guttman, Inc. v. Koovake Enters., Inc., 302 F.3d 1352, 1361 (Fed. Cir. 2002) (district courts "may engage in a rolling claim construction"); Purdue Pharma L.P. v. Boehringer Ingelheim GmbH, 237 F.3d 1359, 1363 (Fed. Cir. 2001) ("all findings of fact and conclusions of law at the preliminary injunction stage are subject to change upon the ultimate trial on the merits"); Sofamor Danek Group, Inc. v. DePuy-Motech, Inc., 74 F.3d 1216, 1221 (Fed. Cir. 1996).



same fashion that we would on appeal from a final judgment. Int'l Communication Material, Inc. v. Ricoh Co., 108 F.3d 316, 318-19 (Fed. Cir. 1997). To the contrary, we recognize that further proceedings in this case, such as a claim construction hearing, may shed additional light on the claim construction inquiry.

Third, in the prior proceedings, as we have noted, the district court declined to address the last two factors that bear on the propriety of granting a preliminary injunction—the balance of hardships and the public interest. Because the court had resolved the first two factors against Ecolab, it was permissible for the court to decline to address those factors. See Jack Guttman, Inc. v. Kopykake Enters., Inc., 302 F.3d 1352, 1356 (Fed. Cir. 2002); Polymer Techs., Inc. v. Bridwell, 103 F.3d 970, 974 (Fed. Cir. 1996). If the court concludes that Ecolab has made a sufficiently clear showing of likelihood of success on the merits to be entitled to a presumption of irreparable harm, see Nutrition 21 v. United States, 930 F.2d 857, 871 (Fed. Cir. 1991), the court should consider the remaining two factors in deciding whether to grant preliminary injunctive relief. The court is, of course, free to conduct the proceedings on remand based on the evidence that has been offered by the parties, or to call for any additional submissions that the court may regard as useful to its analysis.

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